

land, about 7 a. m., there was great damage by a brief, violent wind, which was probably not a tornado. At that place, and at Syracuse, Oneida, and Salamanca, the rapid rise in small streams due to the heavy rains led to vast damage, chiefly during the forenoon hours.

In the afternoon of the day damage by wind, rain, or occasionally by hail was experienced from northern New Hampshire southward in practically every one of the coast States to Virginia, the time being earliest, as a rule, to northward and northeastward. In Berlin, N. H., the hour of wind damage was 4 p. m. For the New England States, as a whole, the greatest damage seems to have been experienced in a belt crossing in an east-southeastward direction from northwestern Massachusetts and extreme southern Vermont to the Cape Cod district, and here the greatest rainfalls in New England were generally recorded. Considerable wind harm was reported from Pittsfield, Worcester, and from a few miles north of Boston to the vicinity of Brockton; but the greatest wind damage in the State was apparently in Weymouth, Quincy, and vicinity. The places of chief hail damage, however, were well to northward of the places of most wind damage, the hail being felt most in Everett, Malden, and Melrose. The height of the storm, in and near Boston, was between 3 and 4 p. m.

In New York City and vicinity the storm damage was chiefly between 5:30 and 6 p. m. Here the loss of life, and probably of property also, was greatest. While a

considerable number of deaths occurred as a result of the storm in various ways and in various localities, yet the large majority came from the effects of a brief, violent thundersquall, that came very suddenly to part of the Bronx section and to the waters of Long Island Sound to southeastward. A Ferris wheel, in operation near the shore, was blown off its bearings and partly demolished, some of the wreckage falling into the water; 7 deaths resulted from this accident. About 50 were drowned by the upsetting of small craft in the squall-swept area.

At Washington, D. C., the violent winds and thunderstorm came about 8 p. m. Many trees were uprooted or broken off, and some persons were injured by accidents due to the wind.

About 10:30 p. m., Sullivan County, in northeastern Pennsylvania, was visited by a small tornado, which traveled about 8 miles southeastward, resulting in one death and much property loss.

Later information indicates that two small tornadoes did occur in New York State, but not at places mentioned above. The first was at Prattsburg, Steuben County, about 6 p. m. on the 10th. The second was in Greene and Columbia counties, about 4 p. m. on the 11th; this storm traveled 20 miles, crossing the Hudson River north of Athens. These storms damaged farm property but caused no deaths.

These storms are mentioned in the table following this section.

#### SEVERE LOCAL STORMS.

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the annual report of the chief of bureau.]

Place.	Date.	Time.	Width of path (yards).	Loss of life.	Value of property destroyed.	Character of storm.	Remarks.	Authority.
Dublin, Ga.	1					Wind	Considerable damage to property, especially to telephone and telegraph lines and shade trees.	Official, U. S. Weather Bureau.
Mexia, Tex. (near)	2	P. m.				do.	About 50 derricks demolished and tents and oil shacks blown down.	Dallas Morning News (Tex.).
Scranton, Pa.	3					Rain.	Streets badly washed, sewers blocked, street car traffic interrupted.	Official, U. S. Weather Bureau.
Lansing, Mich., and vicinity.	5	P. m.				Wind, rain, and hail.	Hydroelectric plant incapacitated and other minor damage done.	State Journal (Lansing, Mich.).
Missoula, Mont.	5	P. m.				do.	General damage done. Loss estimated at thousands of dollars.	Helen Independent (Mont.).
Dayville, Oreg.	6	P. m.	6,000			Electrical and hail.	Considerable damage to crops and garden truck, roofs, and trees. Small live stock killed.	Official, U. S. Weather Bureau.
Windsor, N. Y.	6	P. m.				Cloudburst.	Heavy damage to crops and railroad tracks.	The Press (Binghamton, N. Y.).
Middle Tennessee.	6			4		Electrical.	Some stock killed.	Official, U. S. Weather Bureau.
Pulaski and McMinnville, Tenn. (near).	6					Electrical and rain.	No damage reported.	Do.
Put-in Bay, Ohio, and vicinity.	9	P. m.				Wind.	Damage to buildings, wires, and trees.	Star-Journal (Sandusky, Ohio).
Western, southern, and eastern Wisconsin.	9-10				\$500,000	Thundersqualls, hail, heavy rain, and wind.	Many buildings demolished and others damaged. Several persons hurt; live stock killed; floods force families to leave homes; interurban and telephone systems crippled.	Official, U. S. Weather Bureau; Green Bay Gazette (Wis.); Star (Washington, D. C.).
Central and western New York.	11	A. m.		1	1,000,000	Wind and rain.	Residential and business districts of Syracuse flooded. Pavements, roadways, and bridges washed out. Railway and trolley service stopped; crops devastated.	Official, U. S. Weather Bureau; The Post-Standard (Syracuse, N. Y.); Buffalo Express (N. Y.).
Parkersburg, W. Va.	11	P. m.		2		Electrical.	High winds and excessive rain.	Official, U. S. Weather Bureau.
Newark, Ohio.	11	P. m.		3	100,000	Wind.	Bathhouse toppled into lake. Eight injured.	Washington Post (D. C.).
Dnshore, Pa.	11	10:30 p. m.	160	1	40,000	Tornado.	House and barns wrecked, stock killed, orchards uprooted, and other property damage.	Official, U. S. Weather Bureau.
Owen and Henry Counties, Ky., and vicinity.	11	P. m.		2		Wind and hail.	Heavy property damage, trees and telephone lines down. Several persons hurt.	Official, U. S. Weather Bureau; Lexington Leader (Ky.).
Washington, D. C., and vicinity.	11	8 p. m.				Thundersquall.	Trees, houses, automobiles injured; some personal injuries.	Washington Post (D. C.).
New York City, N. Y., and vicinity.	11	P. m.		70		do.	Heavy property damage. Many lives lost and 100 persons injured.	Official, U. S. Weather Bureau; Express (Buffalo, N. Y.); Boston Post (Mass.).
North Adams, Mass., and vicinity.	11				100,000	Wind and heavy rain.	Buildings flooded. Streets and gardens damaged.	Boston Post (Mass.).
Boston, Mass., and vicinity.	11	P. m.		1		Wind and hail.	Many persons injured. Houses wrecked, roofs damaged, trees, poles and wires down, cellars flooded. Loss estimated at hundreds of thousands of dollars.	Do.
Portland, Me.	12					Wind.	Trees uprooted, overhead wires carried away, and traffic delayed.	Official, U. S. Weather Bureau.
Chattanooga, Tenn., and vicinity.	12	1 p. m.			15,000	Wind and rain.	General damage done by flooding.	Official, U. S. Weather Bureau; Chattanooga News (Tenn.).

*Severe Local Storage.—Continued.*

Place.	Date.	Time.	Width of path (yards).	Loss of life.	Value of property destroyed.	Character of storm.	Remarks.	Authority.
Flora, Ill.	12				2,400	Wind and hail	Damage to silos, fences, etc.	Official, U. S. Weather Bureau.
Central Illinois	13	A. m.			75,000	Electrical and wind.	Property damage heavy. Electric light and power service crippled; trees uprooted, crops damaged, roads impassable. Mine wrecked, five persons injured.	Official, U. S. Weather Bureau; Illinois State Register (Springfield, Ill.).
South central Indiana	13				200,000	Wind	Many buildings destroyed and grain fields and orchards injured.	Official, U. S. Weather Bureau.
St. Paul, Minn.	15	P. m.				Electrical and rain.	Three persons injured. Tracks washed out and other minor damage.	Dispatch (St. Paul, Minn.).
Northwestern Wisconsin	15-16			8	500,000	Tornado and electrical.	Houses and barns destroyed, live stock killed, crops injured, 100 persons injured.	Official, U. S. Weather Bureau; Sentinel (Milwaukee, Wis.).
Antigo, Wis. (near)	16	2:30 p. m.	50 to 100		50,000	Tornado	Ten farm buildings destroyed, many trees damaged, live stock killed, and crop damage great.	Official, U. S. Weather Bureau.
Lansing, Mich. (near)	16	9:30 p. m.	70		2,500	do.	Buildings damaged; trees broken off.	Do.
Scranton, Pa.	17					Rain	Heavy rains cause severe property damage, also the tie-up of railroads for several days.	Do.
Valley Station, Ky. (near)	17			4		Electrical	Four men killed and five injured by lightning.	Do.
North and central New York	17			2	2,000,000	Electrical and cloudbursts.	Scores of persons injured, and severe property damage by a series of electrical storms and floods.	World (New York); Post-Standard (Syracuse, N. Y.).
Carbondale, Pa., and vicinity	17-18					Thunderstorms	Homes, business houses, and mines damaged by floods. Traffic stopped. Damage estimated at millions.	Official, U. S. Weather Bureau; Philadelphia Record (Pa.).
Atlanta, Ga.	18					do.	Electric light, telephone and street car systems out of commission. Trees down, wires broken, basements flooded.	Official, U. S. Weather Bureau.
Memphis, Tenn., and vicinity	18					Electrical, rain, and wind.	Damage to buildings, trees, etc. Traffic delayed by flood and debris. Estimated damage, thousands of dollars.	Official, U. S. Weather Bureau; Commercial Appeal (Memphis, Tenn.).
Brentwood, Fla.	19				3,000	Thunder and wind.	Damage to fair grounds.	Official, U. S. Weather Bureau.
Springfield, Ky.	19				25,000	Rain	Considerable damage by washout.	Do.
Macon, Ga.	20					Electrical	Sewer-pipe works badly damaged.	Do.
Central New York	21-22					Rain	Heavy damage from floods.	Press (Binghamton, N. Y.).
Williston, N. Dak., and vicinity	22-23			1		Rain and wind	Damage to buildings, trees, etc., and by flooding. Several persons injured.	Official, U. S. Weather Bureau; Williston Herald (N. Dak.).
Bottineau County, N. Dak.	23				300,000	Tornado	About 50 barns, 30 dwellings, 100 outbuildings, and 50 windmills destroyed.	Williams County Farmers Press (Williston, N. Dak.).
Wichita, Kans.	24	7 p. m.				Wind and rain	Electric and street-car service interrupted, streets flooded, wheat crop damaged, and live stock killed.	Wichita Eagle (Kans.).
Marshall and Washington Counties, Kans.	25	P. m.				Hail and rain	Wheat and oat crops total loss.	Official, U. S. Weather Bureau.
Fort Oglethorpe, Ga.	27	4 p. m.		1		Wind	Walls blown down. Two injured.	Star (Washington, D. C.).
Hornell, N. Y., and vicinity	28-29					Cloudbursts and electrical.	Heavy damage from flooding to tracks, highways, and crops. Barn burned.	Star-Gazette (Elmira, N. Y.).
Goddard, Kans.	29	P. m.				Wind, rain, and hail.	Wheat crop damaged. Telephone systems out of commission.	Wichita Eagle (Kans.).
Adair County, Ky.	29					Electrical and rain.	Crops damaged and several head of cattle killed by lightning.	Official, U. S. Weather Bureau.
Normal, Ill.	30					Wind	Trees and wires blown down.	Do.

## STORMS AND WEATHER WARNINGS.

By EDWARD H. BOWIE, Supervising Forecaster.

## TROPICAL STORM IN THE WEST GULF OF MEXICO.

The morning of the 15th meteorological observations by radio from vessels in the southwestern Gulf of Mexico disclosed the presence of a disturbance of moderate intensity central off the port of Tampico, Mexico. This disturbance seemingly had its inception over the southwestern Caribbean Sea on the 12th, although the indications were that it was of but minor intensity. Nevertheless, it caused torrential rains in the vicinity of the Swan Islands during the 12th and 13th. On the 13th there were indications of an imperfectly organized disturbance in the Gulf of Honduras, and moving westward it appeared, as stated before, off Tampico on the morning of the 15th. During its movement westward through British Honduras and Yucatan, press reports tell of torrential rains and unprecedented floods in Salvador, and it is probable that similar conditions prevailed in the adjoining republics, but confirmation of this statement is lacking. Moving northwest from the vicinity of Tampico, the cyclone passed inland during the morning of the 16th immediately south of the Rio Grande and passed up the valley of that river, attended by excessive rains which resulted in unprecedented floods in the lower Rio Grande valley. Northeast storm warnings were dis-

played at 2 p. m. of the 15th at Brownsville, Tex., and at 10 p. m. at Corpus Christi, Tex., and at the same time advices were issued of heavy rains along the lower Texas coast in the ensuing 24 hours. A report of the floods in the lower Rio Grande Valley will be found elsewhere in this number of the MONTHLY WEATHER REVIEW.

## WASHINGTON FORECAST DISTRICT.

In the Washington Forecast District the month was not unusual as to storminess, but rains were frequent and in the North Atlantic States excessive. Few warnings were required; no general displays were ordered for the coastal waters. The disturbances that occurred were of local nature, as, for example, the severe squalls on the Middle Atlantic and New England coasts on the late afternoon of June 11. On the morning of this day small-craft warnings were ordered for the Atlantic coast over and north of Chesapeake Bay, the advices being to the effect that a disturbance of considerable intensity was central north of Lake Ontario and moving eastward and that it would be attended by fresh south and southwest winds and squalls during the afternoon and night of the 11th. The severest of these squalls seems to have occurred in the vicinity of New York City where it did much damage and caused the loss of a considerable number of lives of persons in pleasure boats in the adjacent waters. The